AMENDMENT TO THE CLAIMS

1. (Currently Amended) A nanocomposite which is manufactured from applying particles of materials, comprising:

a. ~~an aluminum alloy phase, which is formed during a consolidation step and a subsequent metal working step from aluminum or aluminum alloy particles with nano-scale surface aluminum oxide composed of an aluminum metal or aluminum alloy inside of said particles and an aluminum oxide layer on the outside of said particles~~[[;]]

aluminum or aluminum alloy particles with nano-scale surface aluminum oxide comprised of an aluminum metal or aluminum alloy inside of said particles and an aluminum oxide layer on the outside of said particles, and particles of a modulus phase; and

b. ~~a nano-scale aluminum oxide phase, comprising nano-scale aluminum oxide particles in said nanocomposite, said nano-scale aluminum oxide particles are prepared from the aluminum or aluminum alloy particles with nano-scale surface aluminum oxide composed of an aluminum metal or aluminum alloy inside of said aluminum or aluminum alloy particles and an aluminum oxide layer on the outside of said aluminum or aluminum alloy particles , said nano-scale aluminum oxide phase is from said aluminum or aluminum alloy particles wherein said outside layer of aluminum oxides of said aluminum or aluminum alloy particles is broken in the processes of making said composite, wherein said breaking of said aluminum oxide layer of said aluminum or aluminum alloy particles does not happen in a step to make the powder mixture of said composite, and said breaking of said aluminum oxide layer happens during a consolidation step and subsequent metal working step, further an amount of said nano-scale aluminum oxide phase in said composite is quantitatively controllable in a step of making said aluminum or aluminum alloy particles with nano-scale surface aluminum oxide, and~~ said aluminum oxide layer of the particles is quantitatively controlled from a

volume percent of nano phase aluminum oxide needed in said particles which is defined by a N_{AL}, and is specified by :

$$N_{Al} = N_T(1 + V_M/V_{Al})$$

where N_T is a volume percent of the nano phase aluminum oxide in the nanocomposite, V_M is a total volume percent of the modulus phase, and V_{Al} is a total volume percent of the aluminum phase in the nanocomposite.

~~c. a modulus phase.~~

2. (Currently Amended) Said nanocomposite in accordance ~~of~~ with Claim 1, wherein said aluminum alloy comprises elements taken from aluminum, boron, cobalt, copper, iron, magnesium, manganese, nickel, silicon, titanium, zinc, alloys and a combination thereof.

3. (Currently Amended) Said nanocomposite in accordance ~~of~~ with Claim 1, wherein said nano-scale aluminum oxide ~~phase is nano-scale aluminum oxide particles being~~ is uniformly distributed in said nanocomposite.

4. (Currently Amended) Said nanocomposite in accordance ~~of~~ with Claim 1, wherein said modulus phase is ceramic particles ~~being~~ are uniformly distributed in said nanocomposite.

5. (Currently Amended) Said modulus ceramic particles in accordance ~~of~~ with Claim 4 ,wherein said particles are selected from boron carbide powder, silicon carbide powder or other ceramic powders having higher elastic modulus than that of aluminum oxide.

6. (Currently Amended) Said nanocomposite in accordance ~~of Claim 1~~ with Claim 1, comprising about 0.5 to about 10 volume percentage of said nano aluminum oxide particles.

7. (Currently Amended) Said nanocomposite in accordance ~~of Claim 1~~ with Claim 1, comprising about 1 to about 45 volume percentage of said modulus ceramic particles.

8. (Currently Amended) Said nano-scale aluminum oxide particles in accordance ~~of Claim 3~~ with Claim 3, ~~having~~ wherein said particles have an average particle size between about 10 nm to about 800 nm.

9. (Currently Amended) Said modulus ceramic particles in accordance ~~of Claim 4~~ with Claim 4, ~~comprising~~ wherein said particles have an average particle size between about 0.2 microns to about 15 microns.

10. (New) Said nanocomposite in accordance with Claim 1, wherein said aluminum or aluminum alloy particles with nano-scale surface aluminum oxide are comprised of an aluminum metal or aluminum alloy inside of said particles and an aluminum oxide layer on the outside of said particles and are preferably in a spherical shape.

11. (New) Said preferred spherical shaped aluminum or aluminum alloy particles with nano-scale surface aluminum oxide in accordance of Claim 10, wherein said aluminum oxide layer of the spherical particles is quantitatively controlled from a volume percent of nano phase aluminum oxide needed in said particles, which is defined by the symbol N_{Al} and is specified by:

$$N_{Al} = 1 - (1 - 2\ T/D)^3,$$

where T is a thickness of the aluminum oxide layer, and D is an average size of said particles.

12. (New) Said nanocomposite in accordance with Claim 1, further comprising an aluminum alloy phase, wherein said phase is formed during a consolidation step and a subsequent metal working step from aluminum or aluminum alloy particles with nano-scale surface

aluminum oxide comprised of an aluminum metal or aluminum alloy inside of said particles and an aluminum oxide layer on the outside of said particles.

13. (New) Said nanocomposite in accordance with Claim 1, further comprising a nano-scale aluminum oxide phase comprising nano-scale aluminum oxide particles in said nanocomposite, said nano-scale aluminum oxide particles are prepared from the aluminum or aluminum alloy particles with nano-scale surface aluminum oxide comprised of an aluminum metal or aluminum alloy inside of said aluminum or aluminum alloy particles and an aluminum oxide layer on the outside of said aluminum or aluminum alloy particles , said nano-scale aluminum oxide phase is from said aluminum or aluminum alloy particles wherein said outside layer of aluminum oxides of said aluminum or aluminum alloy particles is broken in the processes of making said composite, wherein said breaking of said aluminum oxide layer of said aluminum or aluminum alloy particles does not happen in a step to make the powder mixture of said composite, and said breaking of said aluminum oxide layer happens during a consolidation step and subsequent metal working step, further an amount of said nano-scale aluminum oxide phase in said composite is quantitatively controllable in a step of making said aluminum or aluminum alloy particles with nano-scale surface aluminum oxide, and a modulus phase.